*DOI:*
10.1016/j.worlddev.2017.03.036

*Document Version*
Peer reviewed version

**Conflict and collisions in sub-Saharan African urban definitions: interpreting recent urbanization data from Kenya**

Deborah Potts, Geography Department, King's College London

debby.potts@kcl.ac.uk ORCID iD 0000-0002-0221-4497

Pre-acceptance draft (accepted 28 March 2017), now in press for publication in *World Development*. **Please refer to the original document for citation purposes**

Abstract:

This paper explores the challenges for analysis of urbanization which can arise from insufficiently rigorous definition of what is 'urban'. Policy makers and investors still use the ideas of 'rural' versus 'urban' and increasingly assume that the pace of urbanization in African countries is a measure of positive economic structural change. However most urban definitions do not incorporate economic characteristics. In Africa widely differing urban population thresholds and administrative factors are the most common criteria. The thresholds are often so low that many rural settlements may also be defined as 'urban' or they may be included on population density criteria, meaning the apparent pace of urbanization is inflated unrealistically. These issues are exemplifed in this paper through detailed examples drawn from Kenya. It uses a range of sources including official census data and urban data published by Africapolis, as well as aerial images of rural and urban settlements in Kenya. It demonstrates how the use of population density criteria has inflated Kenyan urban data by the incorporation of large numbers of rural people and explains how this can lead to misleading interpretations of local and national urban and migration trends. Errors in urban figures can therefore have serious policy implications. It is argued that such errors can be reduced by not relying on a single

criterion to define ‘urban’ or by triangulating data on rural and urban settlements with other relevant information.

Keywords: Urbanization; Urban definitions; Rural settlements; sub-Saharan Africa; Kenya; Africapolis; Migration; Urban policy

Highlights:

- Urban definitions are an important source of possible confusion when urban trends are analysed
- Used alone, population density criteria can include large rural populations as ‘urban’
- Kenya provides many examples of overestimated urban data due to problematic urban definitions
- Migration between rural and urban sectors may be impossible to track if urban areas are drawn so widely that they encompass large numbers of farmers
- Better policy-relevant analysis is possible when occupational characteristics are incorporated into urban definitions

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

# 1. INTRODUCTION

It has long been acknowledged by urban researchers that international comparisons of rates and levels of urbanization can be misleading because of the significant differences in the ways countries define what is urban (see, for example, Cohen 2004; Montgomery et al 2004; Mongomery 2008; various works by Satterthwaite, frequently updated eg 2006, 2007, 2010; McGranahan and Satterthwaite 2014). Most urban scholars know that urban definitions vary between countries to a quite startling extent, with a threshold of, say, 20,000 people in Nigeria, but only 200 needed in Sweden as long as the houses are no more than 200 metres apart (UN 2015). Given their large share of the world's population, it is salutary to recognize that changes in definitions of 'urban' in China have significantly affected the level of urbanization recorded there (Shen 2005; Montgomery 2008; Qin and Zhang 2014), and that the frequently cited case of India's exacting criteria for a settlement to be deemed 'urban' mean it is recorded as far less urbanized than it would be under most other countries' criteria (Satterthwaite 2007; Jones and Corbridge 2010; Indian Institute for Human Settlements 2011). As the world becomes more urban, these issues have attracted more attention, perhaps because of the iconic significance of anticipating, and then passing, the 'moment' when the global population shifted from being mainly 'rural' to mainly 'urban'. Identifying regions and countries in Asia and Africa where this has occurred, or is projected in the near future to occur, is a common starting point for contemporary economic analyses by a wide range of actors, including investment consultancies, financial and current affairs media, development agencies, national and city governments, NGOs as well as academics (Potts 2016). On the other hand, many

of these economic analyses brush over the difficulties of definitions, if they recognize them at all.

The characteristics used to define what is 'urban' include settlements' political and administrative functions, population size and population density, economic characteristics (in particular the nature of employment), or some combination of these. These features can all be traced back, conceptually, to the transformations for human organization and production made possible by the emergence of agriculture around twelve thousand years ago. Food surpluses allowed the specialization of labour away from acquiring food, which in turn facilitated the development of trade, the accumulation of surpluses, complex and hierarchical types of state formation, and class divisions. These new types of occupations, trade and political and religious authority were all located in and channelled through the new nodes in the human landscape which emerged: relatively large, permanent, densely settled and heterogeneous (cf Wirth 1969) *urban* places. Thus, from the very beginning, labour specialization away from natural resource-based work (eg agriculture, forestry, fishing) was the crucial enabler and characteristic of urban settlements.

The influence of urbanism's historical roots can still be seen in some national definitions of 'urban' used today which are published in the United Nation's World Urbanization Prospects (WUP), the main global urban dataset. This provides numbers on total urban populations as provided by national statistical authorities based on country definitions. Administrative criteria are still the most common and are used by 'just over half' the countries reporting to the UN (Montgomery et al 2004: 132). Density and size are frequently used to determine the cut-off between urban

settlements and rural areas and settlements. However, only 30 countries reported in the most recent 2014 WUP (United Nations 2015) included economic characteristics, despite their significance in the emergence of urbanism. Of these thirteen were Republics within the former USSR which still use its definition based on number of inhabitants and a 'predominance of non-agricultural workers and their families'. In Japan one criterion is that '60 per cent or more of the population (including their dependents) are engaged in manufacturing, trade or other urban type of business', and in India that '75 per cent of male working population are engaged in non-agricultural pursuits'. Until 1982 settlements with less than 100,000 in China were only 'urban' if more than 70 per cent or their populations were 'registered as nonagricultural'. In these countries, where large 'villages' or very dense rural settlement patterns have long histories, the centrality of 'urban' being associated with non-agricultural types of work is evident. It relates to an understanding that 'urban' means more than settlement size and/or density, and must also mean 'not rural' *in economic terms*.

This latter point is significant in relation to the complex and often contradictory realms of interpreting national urban data. One reason why cross-national comparisons of urbanization can be misleading is that urban population thresholds may be so low in some countries that settlements which are essentially villages with very high proportions of agriculturally-based livelihoods are included. They can also be too high so that settlements where most households do not derive any significant part of their livelihoods from natural resource-based activities, which might logically be regarded as 'urban', are excluded. Population density criteria are also fraught with possible difficulties since rural settlement patterns are very variable between and within countries and over time. Factors involved include local agro-ecological

conditions: fertile soils and reasonable rainfall (or irrigation) may allow for very high rural densities where smallholder agriculture is still the norm as it still is in many parts of Asia and Africa. These may equal or exceed the density required under European Union criteria for classification as an 'urban cluster' of 'at least 300 inhabitants per $km^2$ and a minimum population of 5,000' (Dijkstra and Poelman, 2014: 6) which translates into 3 people per hectare over a contiguous area of 17 square kilometres.[1]

Montgomery et al (2004: 135) note that problems with cross-national comparisons of the *level* and pace of urbanization are often related to these issues of defining 'settlements that might be classified as either rural or urban' although 'one can skirt the problem by focusing on the urban population that resides in settlements above a given size'. This is often true, but problems with defining the 'urban' population of larger settlements can still affect the measurement of urbanization levels. Urban boundaries can be cast too wide, including people who are still farmers. Major changes can also occur without these being noted in census or other reports. On the other hand, they may not be expanded often enough as urban populations grow and residential areas spread beyond existing boundaries, thus excluding many who are functionally part of the city in terms of the derivation of their livelihoods. For very large cities, such as Sao Paulo or Cairo, there are further complexities for tracking their physical and population growth depending on whether the city's administrative boundaries are used, or the broader concepts of the urban agglomeration, or metropolitan area. These different concepts can yield very different growth rates (Montgomery et al 2004).

[1] Many farming households in Malawi, for example, have less than a hectare of land. Most of Chiradzulu in Malawi, long established as the country's most densely settled rural district, might be classified as a European urban cluster under these criteria with an average population density of 308 and covering 767 square kilometres.

Clearly, therefore, defining what is 'urban' is complicated and contested and there is much scope for misdirected analysis of trends both within and between countries. The view taken here is that 'urban' is best understood as a multi-faceted concept. It involves settlement form (size, density), settlement function (as nodes in nested landscapes of urban hierarchies which channel local, national and global flows of political power, trade and finance), production (with manufacturing industry of particular significance for contemporary cities) and *employment*. Particularly if urban trends are being factored into broader analyses of national economic change, urban employment and economic activities need to be characterised by labour specialisation in ways that mainly sets them aside from work in the primary sector, based on natural resources. In broad terms, secondary and tertiary sector activities (whether formal or informal) are characteristic of urban places (albeit they can also be found in rural settlements eg shopkeepers, teachers, health workers).

The most obvious primary sector occupation regarded as 'non-urban' is farming (whether on large- or small-scale farms), as evidenced by urban definitions which specify that 'urban' employment must be non-agricultural. Working in forestry or fishing are other primary sector occupations which would be considered as non-urban. As with all such discussions, there are always caveats; for example, a large fishing port from which industrial trawlers operate would be an urban settlement, but a settlement where most fishing is on a small-scale artisanal basis might not. Mining is based on natural resources but it can generate very large urban settlements if large-scale, permanent deep mining involving major capital investment is involved. Obvious African examples are Johannesburg, which has long since its inception

developed into one of Africa's largest agglomerations with a broadly based economy, and the Copperbelts in Zambia and the DRC. On the other hand artisanal mining (eg gold panning), which is estimated to employ millions in sub-Saharan Africa (Hilson 2009) has very variable urbanizing effects: small impermanent mining camps are not 'urban' in any meaningful way but multiplier effects associated with underground small mines in Tanzania have encouraged growth in small towns there (Bryceson and Jønsson 2010). The key point is that there are various necessary conditions for a settlement to be truly 'urban' but none are sufficient alone. A large, dense settlement could be a refugee camp, for example. A settlement is thus not even necessarily urban because the settlement form looks urban; its function and the economic characteristics of its population need to be factored in. Population size alone is not necessarily a good guide. In particular, as will be demonstrated below, when choosing factors to determine what is 'urban', population density alone is regarded as insufficient, and the nature of livelihoods is regarded as necessary.

There are other viewpoints, however. There is much excellent work on the emergence of new types of settlements which defy easy definition and which may suggest the reformulation of our terms of engagement with settlement geographies (eg Champion and Hugo 2004; Montgomery et al, 2003; Montgomery 2008; McGranahan and Satterthwaite 2014; Tacoli 2002, 2006; Tacoli et al 2008). One way of thinking about the rural and the urban nowadays, for example, is to treat them in terms of a spectrum of settlement types and livelihoods – very rural at one end to very urban at the other - with a host of intermediary types of physical locations and associated livelihoods, intricately linked by rural-urban movements and flows of goods and services. This is both intellectually respectable and insightful. It allows us to account

for the complexity of settlement types which exists, and promotes the understanding and recognition of the importance of rural-urban (and urban-rural) linkages of all sorts: economic, social, political, and ecological. In Africa, for example, these links play an important part in addressing many inherent vulnerabilities in people's livelihoods in both rural and urban areas (Potts 2010; Tacoli 2002). Seasonal patterns in employment where people move regularly between villages, usually during the dry season, and urban areas can also be accommodated by a spectrum approach. It also encourages us to recognize the zones of transition between the edge of densely built-up urban areas and more sparsely settled rural areas where agriculture and other non-urban landuses predominate. For example, a current large-scale research project, the Rurban Africa project, has been investigating these sorts of zones and the links between rural and urban economies and livelihoods over the past few years. Part of its remit is to think about what might be missed in livelihood changes and opportunities by confining research arenas to either the 'urban' or the 'rural' (University of Copenhagen 2016). Discussion of *desakota* areas beyond city borders or urban administrative areas in Asia (Mcgee 2009) has also challenged conventional conceptualizations by identifying large, sprawling urban developments which incorporate'rural' areas and people. The resultant economic landscapes and livelihoods are a complex mix of activities, still including some agriculture, but intermixed with factories and commercial enterprises and, perhaps, suburban-type housing. However such areas are found adjacent to large cities or embedded in conurbations and do 'not mean that rural activities at a national level have disappeared' (ibid: 2).

Such starting points for reformulating our ideas about the rural and the urban are rather different from those now current and exciting scholarly attention about the concept of planetary urbanization/urbanism. This would do away with the idea of *anywhere* being 'rural', arguing that in the 21st century the world has moved to a point where all places and people are bound into a nexus of urban influences and forces which are now so determinant that the concept of 'rural' has become meaningless (Brenner 2013). Indeed, even the word is set to one aside, in favour of the term 'non-urban realm' (Brenner and Schmid 2014), a realm which is seen as theoretically redundant. This is clearly a more dramatic shift away from conventional ideas about human settlement patterns. For reasons of space it is not possible to engage properly with this debate here: that is a different project. Obviously a paper such as this about urban and rural definitions is rendered pointless were this view accepted, which it is not. For this paper it is worth saying, however, that it is a viewpoint which perhaps seems more feasible to Eurocentric than, say, to Africanist urban scholars, let alone those working on rural Africa. The approach has obvious parallels with broader ideas about globalization, but the idea that all places are increasingly interconnected and affected by events and market forces in distant places does not have to be seen as an essentially urban phenomenon (or indeed necessarily a 21st century phenomenon).

Given the problems with defining what is 'urban', the new ideas about a definitional shift towards a spectrum approach to the 'rural' and the 'urban', and the view that perhaps everywhere now is 'urban', the question arises of whether we should do away with these labels and stop trying to define what makes settlements 'urban'? The view taken here is that academic practitioners in urban and development studies cannot abandon them yet. While in some arenas it may make good sense to embrace a

spectrum approach, it has to be clear that those are the terms of reference and it does not mean it is useful in all situations. Furthermore, we have to recognize that most of those beyond social science academic circles do still work with the general labels of rural and urban, and this includes governments, ministries, statistical offices, all the development agencies and policy makers generally. So also do economists, and many other disciplines involved in development fields, and so do private sector interests like large corporations and investment consultancies. And wherever one might stand on the limitations of conventional conceptualizations of what is rural and what is urban, we do have to communicate with other groups. It also works both ways: it is important to take note of how powerful actors who can really affect people's livelihoods in Africa use these concepts and what they deduce, or rather what they think they can deduce, from them and from the numbers attached to them. Because the data that are out there, listed under the terms rural or urban, are given significant weight by many decision makers.

There are other sources of misleading urban data in Africa: infrequent or poorly conducted censuses, for instance. These can also lead to the use of inaccurate and outdated projections. These have been analysed elsewhere (Potts 2012a). The focus of this paper is different. Even if censuses are regularly published and reasonably accurate in their enumeration, the evaluation of urban trends still needs to check for anomalies arising from the sorts of definitional issues discussed above. The remainder of this paper focuses on the possible impacts of these definitional issues with reference to sub-Saharan Africa and Kenya in particular. A particular concern is the ways in which the 'numbers' recorded under the labels 'rural' and 'urban' are often understood and used as economic proxies (see Potts 2016). After a short

section outlining the key ways African countries define what is urban and the analytical problems these can cause, these issues are illustrated by a detailed discussion of the example of Kenya where there have been problems with published urban data relating to urban definitions and also some significant differences in the urban data provided by different sources due to different definitions. It is shown that this can lead to very different understandings of what is actually happening on the ground, and that some of these interpretations can be misleading for policy makers trying to use the data to deduce trends in economic change in either rural or urban areas.

## 2. AFRICAN URBAN DEFINITIONS

Few African countries include any occupational criteria in their definition of urban settlements. Of the mainland sub-Saharan African countries, 23 use a size threshold only or mainly, sometimes with some administrative centres also included (see Table 1). The population needed to be an urban centre can be less than 2,000 as in Somalia or Guinea-Bissau, and eight countries use 2,000 as the threshold. As already noted, Nigeria uses 20,000. Were this to be reduced to, say, 5,000, and were there to be a census there which gave us reasonably reliable urban data, given the size of Nigeria's population, this would undoubtedly suddenly increase the urban share of West Africa's population, and indeed the whole of sub-Saharan Africa's.

Table 1: Urban definitions using size threshold and no occupational characteristics: mainland sub-Saharan African countries

| <2000 | 2,000 | 2,001-4,999 | 5,000 | 10,000 | >20,000 |
|---|---|---|---|---|---|
| Eq. Guinea | CAR | Gabon | *Cameroon* | *Burkina Faso* | Mali |
| Guinea-Bissau | Kenya | *Niger* | Ghana | *Cote d'Ivoire* [1] | Nigeria |
| *Somalia* | Angola | | Madagascar | Mauritania | |
| | Eritrea | | Sudan | Senegal | |
| | Ethiopia | | | | |
| | Liberia | | | | |
| | S. Leone | | | | |
| | Uganda | | | | |

Notes: italics: some administrative centres included in addition to settlements over the population threshold

1. Cote d'Ivoire officially includes occupational characteristics for settlements below this threshold, see Table 2

Density is also sometimes factored into the mix of urban definitions but, leaving aside South Africa which has a swathe of logical urban criteria, there are only six sub-Saharan African mainland countries (ie excluding island states like Mauritius) which include economic or occupational characteristics (see Table 2). This includes the DRC, which has by far the largest population of this group, but as it has not had a census since 1984 it is only possible to guess at its urban trends since then. For the others, since occupational data for individual towns (besides the largest sometimes) are not published by statistical offices, it is hard to verify how rigorously these definitional criteria are applied and the UN have to take the data on trust.

Table 2: Urban definitions including settlement characteristics other than population only: mainland sub-Saharan African countries

| |
|---|
| **Administrative definition mainly or only:** can mean inclusion of very small settlements: Chad, Guinea, Malawi, Namibia, Lesotho, Rwanda, Swaziland, Togo |
| **Occupational characteristics included: Botswana** (5,000 + 75% economic activity non-ag); **Cote d'Ivoire** (50% households in non-ag if population 4,000-10,000); **DRC** (2,000 but predominant economic activity must be non-ag); **Gambia** (5,000 with non-ag occupation for majority of inhabitants); **Zambia** (5,000 and majority of labour force non-ag); **Zimbabwe** (2,500 and majority of employed in non-ag) |
| **South Africa**: range of logical characteristics required |
| **Tanzania** is unique: acknowledged that there is no specific definition apart from centres classified in terms of their administrative status. Wards are classified as urban, rural, or mixed (both rural and urban) by local officials. Some 'urban' areas include mixed wards |

## 3. CONFUSING AND COLLIDING DEFINITIONS: THE CASE OF KENYA

The paper now turns to discussing Kenya, a country which illustrates almost every possible complication with urban definitions discussed in the earlier sections of this paper: a very low threshold of 2,000 people; sudden and unexplained changes in definitions and urban boundaries between censuses; and the evident inclusion of millions of rural people as 'urban'. It also exhibits another, almost existential, 'urban' definitional issue where even some large settlements turn out to have significant numbers of primary sector workers, indicating a lack of labour specialisation even at the top end of the urban hierarchy. Furthermore, Africapolis,

the African branch of the French urban research project E-geopolis, which uses density criteria alone to define what is urban, has redefined millions of Kenyan people enumerated as rural in the 2009 national census as 'urban', thereby almost doubling the country's urbanization level. Let us start with the issues related to official census statistics.

First, the Kenyan statistical office has been gradually adding extensive areas beyond the perimeter of built-up urban settlements to the 'urban' population. This has been happening since 1979 for some towns. O'Connor (1983: 250) recognized how these boundary issues were beginning to confound the analysis of Kenyan urbanization based on population numbers alone after the 1979 census and was already suggesting the need to include 'other types of data' such as wage employment and municipal expenditure to assess urban trends in the country. One reason for these boundary changes may be various decentralization initiatives which date back to 1970 in Kenya (Becker et al, 2004: 122). These have been greatly enhanced by a new Constitution in 2010 which devolves considerable powers and responsibilities to 47 new counties (World Bank 2012). This may have impacts on trends and the measurement of urbanization which will only become apparent at the next census (Bassett 2016; Munya et al 2015) and cannot be assessed here. By 1999 the urban definitional issues became deeply problematic for meaningful urban analysis; dozens of new and large 'urban centres' suddenly appeared in the census lists of urban settlements and the urbanization level jumped. Once the scale of the issue was recognized, it became apparent that most previous analyses of the country's urbanization patterns since the 1970s, including comparisons between the rates of growth of Nairobi and other large towns as a guide to their relative economic vigour at different times, had been largely

meaningless. For example, there had been discussion of how the intermediate towns in the Kenyan hierarchy like Kisumu, Nakuru, Eldoret and Machakos had, apparently, suddenly started to grow faster than the capital, Nairobi, in the 1970s and/or 1980s with the implication that their economies had become stronger and more attractive to migrants. It also undermined the strength of the conclusions from one analysis by economists of Kenyan urban census data up to 1989 which compared those data with a demographic cohort shift model which took into account the impact of 'the stagnation of social gains' in the 1980s. This concluded that there had been a 'dramatic decline' in the pace of urbanization in Kenya during the 1980s compared to the previous decades which was not only consistent with the model but also mirrored in the census (Becker et al 1994: 2003). Had the impact on the functional (ie non-agricultural) 'urban' population figures of the frequently largely rural areas incorporated by boundary changes also been factored in, the fall may have been even more dramatic. However this would have depended on the timing for, if an individual town's population was 'inflated' in 1979 (rather than 1989), the apparent fall in the growth rate would be far too high or may not have occurred at all. The implications for urban economic policies are also made evident in the following quote from a chapter on 'urban challenges' in a recent Kenyan university textbook:

> The implementation of growth centre policy in Kenya has faced many obstacles. ….. Lack of appropriate data on the urban centres and the hinterlands makes it impossible to develop effective selection criteria. Further, haphazard change of boundaries of urban centres makes it difficult to establish a stable database. This has seen huge parts of the countryside included in the urban boundary that seriously exaggerate the sizes of centres. (Mireri 2007: 112-113)

**Table 3: Kenya's largest 'urban centers' in 2009 ranked by 'population total' recorded in census tables**

| Urban Center | Core urban: total | Peri-urban: total | Rural: total | Population: total |
|---|---|---|---|---|
| Nairobi | 3133518 | 0 | 0 | 3133518 |
| Mombasa | 915101 | 23030 | 0 | 938131 |
| Kisumu | 259258 | 129053 | 21617 | 409928 |
| Nakuru | 286411 | 21579 | 0 | 307990 |
| Eldoret | 252061 | 37319 | 0 | 289380 |
| Kehancha | 30109 | 0 | 225977 | 256086 |
| Ruiru | 236961 | 1897 | 0 | 238858 |
| Malindi | 84150 | 34115 | 88988 | 207253 |
| Naivasha | 91993 | 77149 | 12824 | 181966 |
| Kitui | 20419 | 89149 | 46328 | 155896 |
| Machakos | 41917 | 108124 | 0 | 150041 |
| Thika | 136576 | 341 | 2936 | 139853 |
| Mavoko | 110396 | 26815 | 2169 | 139380 |
| Nyeri | 63626 | 55727 | 6004 | 125357 |
| Vihiga | 36398 | 82298 | 0 | 118696 |

Source: Republic of Kenya, 2009 census

The 2009 census terms these additions 'peri-urban' areas - another term fraught with definitional issues (Simon et al 2004) which will not be dealt with here. However, if their populations are to be included in urban figures, a reasonable view might be that they should be evidently functionally part of the town, with most economically active people commuting to work there or employed in non-agricultural occupations. This is not the approach taken in Kenya. The peri-urban additions are reported in recent census publications to be generally *rural* areas which simply have 'higher than

average population densities'. It is not therefore clear why they are enumerated as part of 'urban centres', which is the specific label used in the census reports. Table 3 shows Kenya's 'largest' 'urban centres' in 2009 ranked according to the *total* populations listed in the census (last column). This table reproduces the precise labels used in the census table which lists 215 'urban centers' (original spelling) from which these data have been extracted.

As can be seen, for some 'urban' settlements the addition of peri-urban populations massively increases the total population. It is not an issue for Nairobi or Mombasa, but these additions greatly *exceed* the core urban population in Kitui, Machakos and Vihiga, increase Kisumu's by about a half, Malindi's by 40%, and nearly double Naivasha's and Nyeri's. Furthermore, some 'urban centers' also have rural populations ascribed to them, causing potential further misunderstandings. The differences in Kenya's pace and level of urbanization depending on which figures are used are significant. The census reports that 30% of the population are now urban, using the combined 'urban' and 'peri-urban' figures. However the 'core' urban data give a level of 23% and this is used by the WUP which notes the comparability problems of including 'peri-urban' populations. Nonetheless, the 30% headline figure has had its impact. In 2011 the World Bank's *Kenyan Economic Profile* made frequent reference to the apparent massive surge in urbanization as proof of the country's economic vigour and was subtitled: '*Making the most of Kenya's demographic change and rapid urbanization*' (World Bank 2011). The preface starts with Johannes Zutte, the World Bank Director for Kenya, stating that 'Kenya is at the beginning of a major demographic transition and is urbanizing rapidly' (p. ii); later it states 'As elsewhere, urbanization provides many opportunities for economic and

social development. Economic activities located in the cities and towns are on average much more productive than those located in rural areas – so when more people live and work in the cities, this helps economic growth' (p. viiii). Based on the misleading census data the report notes approvingly that:

> Every year some 250,000 Kenyans are moving to cities and formerly rural areas are becoming increasingly urban. Twenty years ago Kenya's urbanization level was only 18 per cent. By 2020, 40 per cent of Kenyans will live in cities and, in 2033 Kenya will reach another tipping point because half of its population will then be living in urban areas…… Today, some 30 per cent of Kenyans already live in urban areas …. By 2020 Kenya will have 37 cities of over 100,000 residents, up from 21 today' (ibid, p20, 24)

The gist of the report was swiftly appearing in local media (eg *East African* 2011). The 'tipping point' seems to have been calculated roughly on the basis that since the country appeared to have added ten percentage points to its urbanization level between 1999 and 2009, it would continue to do so over the next twenty years.[i] But of course it had not; the rise in the level was probably between three and four percentage points. Applying the same logic, Kenya will not become half urban for another sixty years, in around 2070. Although this is an unequally unsafe projection, it serves to illustrate the really significant implications for policy makers of working with problematic 'urban' numbers. Indeed Kenya's current development blueprint, Vision 2030, claims that by 2015 the country would be 44.5% urban (Civil Society Urban Development Programme n.d.) which has evidently not occurred.

So what are these (so called) peri-urban areas like? Do they have incipient urban characteristics? Careful scrutiny of many such areas via google maps suggests that most, although not all, are clearly rural. The landscapes tend to be characterised by strongly rural features. For example, nearly all the land is occupied by cultivated fields and the housing is scattered. Several illustrations are provided in the accompanying interactive map. They are not areas where urban low-income housing has spread beyond town borders for which a sound argument can be made for inclusion.

*(a) Examples of exaggerated urban populations in Kenya*

Three examples are discussed to illustrate this point and the ways in which Kenya's unusual urban definitions hinder proper analysis of urban and migration trends which might assist policy makers. Vihiga municipality appeared for the first time in the Kenyan census list of *urban* places 1999 with a population of 109,000. In 2009 the census recorded 119,000 people giving an its average annual growth rate of around 0.8 per cent, far below the Kenyan average of 3 per cent and what would be expected just from natural increase. On the one hand this appears to imply that in the intervening period Vihiga 'urban center' was very economically unattractive and experienced significant net out-migration. However, as shown in Table 4, the core urban population of the town itself was only about 36,000; the majority enumerated were 'peri-urban'. Simple observation of the area around the small town via google maps shows nothing that would characterise the settlements and landuse there as anything but rural (see images of Vihiga town and immediately adjacent rural landscape in interactive map).

Interactive google map link about here  Images 1 and 2 in powerpoint file

Once this is established, very different economic interpretations are possible.  One could be that the area experienced out-migration that was partly rural-urban in character (i.e. rural people were leaving Vihiga for other, truly urban, localities). Another could be that there had been out-migration of a rural-rural character driven by land shortage – this seems to be a strong likelihood as the population density is high.  Thus there are three different scenarios which depend on interpretations of urban definitions: out-migration from a town; out-migration from rural to urban areas beyond the area defined as Vihiga urban centre; or rural-rural migration to land outside of the area.  The implications of each scenario for analyses of migration and urbanisation and Kenyan economic change are evidently entirely different.

The example of Kehancha,  which lists as Kenya's sixth largest 'urban center' if the aggregated total figures were taken at face value (see Table 4), is similar, although here the town is associated with a 'rural' population of nearly a quarter of a million! The 'town' and the surrounding areas are shown in  the interactive map  (Image 3 of Kehancha town and immediately adjacent rural landscape in powerpoint file). Evidently the associated areas and their residents really are deeply rural and their appearance at all in a census list for urban centres is a definitional quandary.

The definitional issues have also caused confusion over somewhat larger, more established towns.  The combined urban and peri-urban figure for Machakos in 2009 is 150,000 but, as with the other examples, it is evident that there is no reason to

consider most of the population in the vicinity around the town as anything other than rural and the core 'urban' figure of around 42,000 seems appropriate (see interactive map) (Images 4 of Machakos town and Image 5 of landuse and settlements immediately adjacent to Machakos town to the east; in powerpoint file). Astonishingly, this core figure is only half the 'urban' population listed for Machakos in the 1979 Kenyan census, indicating how the creeping overestimation of Kenya's urban population has a long history for some settlements.

As with Vihiga, depending on the urban definitions used, the interpretation of what is happening in Machakos is completely different. Based on the combined 'urban' populations in 1999 and 2009, the average annual growth rate was only 0.48% suggesting very significant net out-migration. Using the core urban populations for both years, however, the rate was 3.8%, suggesting more plausibly some net in-migration, and that it was growing as fast as Nairobi and a little faster than Mombasa.

An example of a much larger Kenyan town with definitional issues relating both to over-expanded boundaries and occupational characteristics is Nakuru, with over 300,000 people according to the 2009 census. Here massive boundary expansion in 1979 and 1992 exaggerated its 'urban' population growth and farmland and farming are commonplace as the central landuse and economic activity in very large parts of the city (Foeken and Owuor 2001) (see Figure 1 and images of Nakuru farmland in interactive map) (Images 6a and 6b in powerpoint file).


Source: google maps 2015

Figure 1 Nakuru urban boundaries and location of aerial images of Nakuru in interactive map

Although it is not unusual in African urban centres for some residents to practise urban agriculture and/or maintain farms in rural areas (eg Maxwell 1999; Lynch et al 2012; Simatele et al 2012; Tambwe et al 2011; Mougeot 2005; Potts 2011), the extent to which agriculture contributes to livelihoods in Nakuru, given its size, is exceptionally high. A sample survey in 1999 of residents living in the *built up* parts of the town (ie excluding the extensive farmland areas within the urban boundaries) found about one third were either cultivating or keeping livestock *within* the town

boundaries, and nearly two-thirds cultivated in rural areas. For 14% of the surveyed residents who were cultivating this was their main economic activity (ibid) which is not in line with the occupational changes usually presumed to occur with urbanization.

*(b) Kenyan urbanization according to Africapolis definitions*

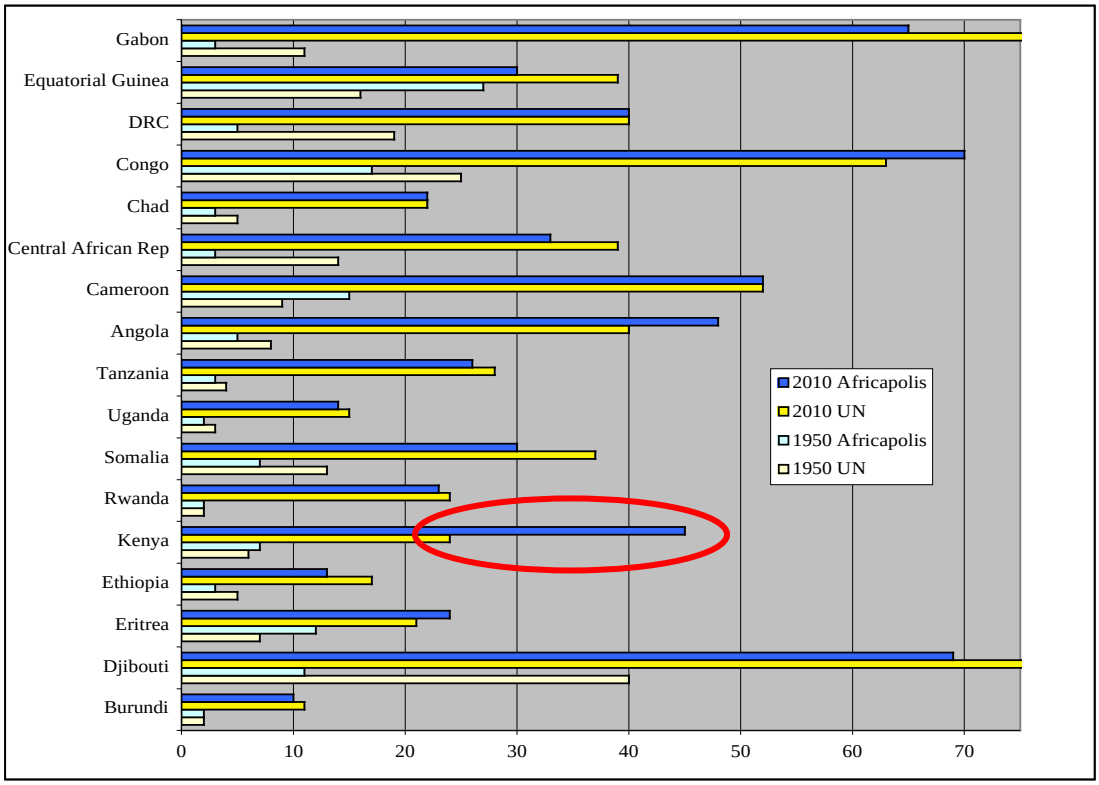
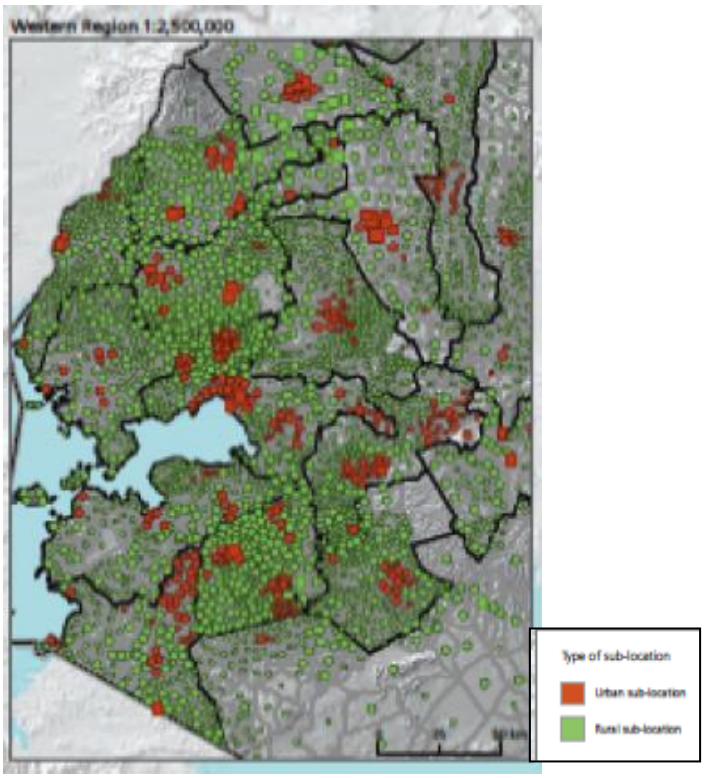



Figure 2: Central and East African urbanization levels 1950 and 2010: comparison between UN World Urban Prospects and Africapolis figures

The final example of Kenyan urban definitional issues relates to the Africapolis project's results on Central and East African urbanization. These are published in a

regional report (Harre et al 2010a) and a profile of Kenya (Harre et al 2010b) and give an urbanization level for 2010 of 45.3%. Were this correct it would transform our understandings of Kenyan society and economy, since it is double the 'core' urban level of 23% which, as noted above, is used in the WUP. It is even 50% higher than the set of census figures which include peri-urban populations.

Africapolis uses population density from remote sensing to establish the extent of urban settlements, cross referenced with census and other sources, to provide an estimate for a recent year of the urban population, and also provides lists of estimated urban populations by decade from 1950, and projected forward from their survey. They generally use 10,000 as the urban threshold. Although their published survey of East and Central African urbanization levels for 2010 throws up some anomalies when compared, say, to the WUP for 2010 (Figure 2), the differences are less marked generally than for West Africa (see Potts 2012b) and will not be further discussed here. The exception is Kenya where definitional issues have had a truly profound effect.

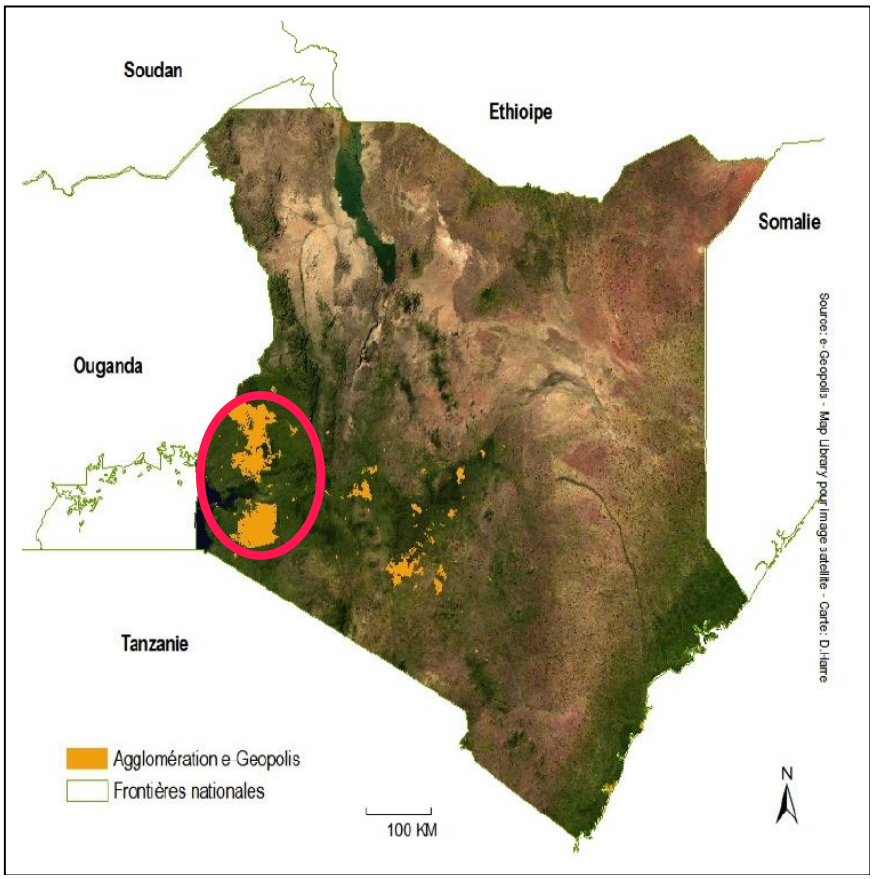



Source: Odhiambo 2014.

Figure 3: Urban sub-locations in Western Region, Kenya as defined in national census 2009

While there is some overlap in the definitional imprecision between the Kenyan census data and Africapolis, the latter's approach is more problematic. Figure 3 shows sub-locations in the Western Region of Kenya defined as urban by the census; a comparison between these areas and the broader brush depiction of most of the region as 'urban' by Africapolis in Figure 4 illustrates the difference. The conflict with WUP and Kenyan census figures arises because Africapolis uses a simple

density criterion (buildings less than 200m apart) to determine the physical extent of 'urban' areas. There is no cross-reference to




Source: Harre et al, 2014.

Figure 4: 'Urban agglomerations' in western Kenya based on Africapolis's density criterion

observable livelihood and landuse context on the ground. This has led to thousands of square kilometres of densely settled farmland across a vast swath of western Kenya being designated 'urban' (see Figure 4), when much of the region is well known in the rural development literature for its characteristically intensive farming and associated high *rural* population densities.

The areas thus defined by Africapolis are 'Nyanza conurbation' with 2.3 million 'urban' people in an area covering 3,028 sq kms and 'Western conurbation' with 3.9 million people in an area of 4,248 sq km (making it more populous than Nairobi). While there are some uncontroversially urban settlements in these areas (eg Kisumu, one of Kenya's largest towns with 0.26 million in 2009 is in Nyanza Province), their aggregated populations (using a threshold of 10,000) were only 0.33 million in Western Province and 0.56 million in Nyanza. More typically the areas depicted as 'conurbations' look like that depicted in the interactive map (see interactive map for typical landuse in Nyanza defined as 'urban' by Africapolis.

There are many other examples of overestimation of Kenya's urban population by Africapolis beyond this area in the west of the country. For instance, a large area round Machakos of 229 sq kms is defined as 'urban', with a population of 0.25 million, nearly six times the size of the Kenyan census figure for the core urban population of the town discussed above and depicted in the interactive map.

*Rural versus urban settlement patterns?*

It is argued that using these Africapolis figures for anything other than a starting point for a discussion about Kenya's unusually dense but scattered *rural* settlement patterns would be bound to mislead. The graphics in the Africapolis report are labelled with the terms 'urbanization'/'urban' and do not clarify that there is a departure into measuring a more esoteric spectrum of settlement patterns. As noted in the introduction, there is utility in spectrum approaches to the study of urbanization but

they need to be cross-referenced with livelihood patterns if they are to contribute to debates about socio-economic change. In relation to this, the Africapolis report on Central and East Africa does say: 'the configurations of the agglomerated areas with densified space are essentially agricultural areas, particularly in Kenya, Cameroon, Sudan. Unlike villages and towns based on people working in services, administration and industry, the processes in East and Central Africa often involve the fragmentation of peasant farms' and with reference to western Kenya that, 'In [these] societies which maintain norms of scattered settlement, agricultural practices are generating in-situ uncontrolled agglomeration processes …. one finds a hybrid form of settlement, where agriculture is the main activity, but where the density is too high to be rural but too small for a town of this size. We are therefore dealing with conurbations…'[ii] (Harre et al 2010a: 15).

Although this does alert the reader to the rural nature of many of the landscapes labelled 'urban', nonetheless some terms are being used in ways very different to how they are usually understood by urban practitioners, without explanation. For example, 'maintaining scattered settlement' is likened to agglomeration when these two things are usually understood to be completely opposite. In addition, areas dominated by farming (even if densely populated) are depicted as conurbations when this term usually refers to towns coalescing. This loose use of urban terminology makes the analysis confusing and potentially misleading.

The issues identified arguably stem from the terms of reference of the e-Geopolis project: it is about improving the comparability of the global database on *urban* settlements and populations. Its terminology and labels are, understandably enough,

determined by its agenda. The problems discussed above possibly arise from the barriers this sets up for recognizing that some of the phenomena mapped may be better understood in terms of the sub-discipline of *rural* settlement geography and from the anomalies which can occur if using only one criterion for defining urban populations, even when observation of landscape and landuse suggests the need for further refinement in a particular geographical context. Thus, while it is understandable that the analysis is couched in urban terms, what Africapolis has mainly identified in this case is differences in *rural* settlement patterns between parts of East and Central Africa, and much of West Africa where there is a greater tendency for rural people to live in agglomerated villages. The Africapolis report even notes that the regions' rural geographies are different, pointing out that rural West Africa has a 'more even population distribution and residences tend to be grouped together' (Harre et al 2010a:17) but the implications for the conclusions made about Kenya are missed. For this means that Africapolis categorises villages in West Africa, where the key occupation is farming, as rural because there are unoccupied spaces between them, but defines large parts of Kenya's rural landscapes as 'urban' because houses tend to be evenly spaced across the farmland. Thus the regional differences are due to a definitional conundrum whereby, if the rural people of western Kenya tended to live in agglomerated villages, although the population density would not change, they would have been defined as rural. In other words, at high rural population densities, the more scattered the population is, the more urban they are according to the Africapolis methodology. A more telling example of the importance of definitions for interpreting African urban and rural trends is hard to find.

A final example of how the problematic definitions adopted by Africapolis in its

analysis of Kenya can obscure understandings of urban and economic trends relates to the projections the project provides for Kenyan urbanization. National urban policies often draw on population projections so that planners can anticipate where population change will occur. The geographies of migration flows (both rural-urban and urban-rural) are necessary elements in such projections. Such flows are key indicators of the geography of economic opportunities and changing patterns of demand for services, *inter alia*. Their trends and scale are therefore useful information for policy makers. However, because the Africapolis report has defined so many densely settled rural areas as urban, even when they were very far from the observable boundaries of built-up areas of real towns, subsequent out-migration from such areas into towns and cities becomes 'hidden'. This is because migration flows are only measured across the administrative or settlement boundaries used by censuses or other surveys. Any movement within a defined spatial unit, such as an urban settlement, will not be picked up by migration questions in such surveys. Very extended urban boundaries which embrace large rural areas with strongly agricultural populations mean that mobility within that spatial unit with important policy and economic implications – that is migration between functionally rural and functionally urban areas – is missed. As demonstrated in this paper this is already occurring due to the current Kenyan census approach. The same issues arise with Africapolis, but further exaggerated. Africapolis projects that over the current decade, 2010 to 2020, Kenya's urbanization level will rise by less than one percentage point to 46.2%. This would imply that net migration between rural and urban Kenya had severely contracted with all that this would imply in terms of very slow changes in national employment and production structures. Although such slow urbanization in African countries is not unprecedented (Potts 2012a), it seems rather unlikely in Kenya's case. Yet the next

census will probably not be able to provide clear answers about these useful planning indices either because of the national definitional issues. The problem is that, whatever is actually occurring in terms of net migration flows and urban trends within Kenya is becoming increasingly difficult to measure and analyse because so many rural people have now been conflated into the 'urban' population.

## 4. CONCLUSIONS

This paper has argued that analysis of urban trends requires careful consideration of the definitions and labels relating to 'urban' and 'rural' employed by the datasets used. It is widely recognized that comparative analysis of urbanization needs to be wary of differences in national definitions. If this is addressed, often it is achieved by using standardized urban population thresholds (eg 10,000 or 20,000). However, as has been shown in the case study of Kenya, there are other potential sources of confusion. These can make analysing urban trends within the same country, let alone comparisons, very challenging. Changes in definitions between censuses can render analysis meaningless. Questionable treatments of in-situ urbanization can also mislead.

It is important to note that it is recognized that in-situ urbanization, whereby settlements previously defined as rural are re-defined as urban without necessarily increasing in population size, can be an important element in urbanization. It can occur where economic activities of populations living in agglomerated settlements gradually shift towards specialised occupations which differentiate them from agriculturally-based livelihoods or larger urban settlements expand to incorporate

surrounding villages (eg see Zhu 2002, on China; Selolwane 2006, on Botswana). However, relabelling as 'in-situ urbanization' landscapes and populations which are functionally rural, where natural resource based landuses and livelihoods predominate, on the basis of population density *alone* is problematic. It makes the assessment of the geography of structural economic change extremely difficult. This paper has shown how this is one process that has made the analysis of urbanization in Kenya for some decades both confused and confusing. First, Kenyan censuses ascribe significant numbers of rural people to many 'urban' settlements . Second, the Africapolis report on Kenyan urbanization takes this process even further and re-defines millions more rural Kenyans as 'urban', making specific reference to the term 'in situ urbanization' in a way which, as explained, is regarded as highly questionable.

Promoting the use of logical urban definitions which users of urban data understand and recognize is not an essentialist argument. It is not a call for the development of one set of universally accepted urban criteria. Not only is that unachievable, given the vast range of national definitions in use, but it would undoubtedly cause another set of problems since there really are important localized factors and contexts which determine what is sensibly definable as 'urban'. Instead the analysis in this paper is pointing to two issues with implications for urban and economic policies. One is that statisticians – those who 'make' the urban (or rural) data – can improve things for end users if they explain as clearly as possible how and why 'urban' settlements and populations are defined and, crucially, what the definitions mean for how the data can be used and what can and cannot be deduced from it. For example, if density criteria alone are used to define some areas, as in Kenya, then users might be reminded that this may not mean that there have been any structural economic changes in those

areas which conform with the norms of urbanization as an economic process. The second issue is that users of the statistics need to check that the 'numbers' conform to their expectations of what 'urban'implies. For a political scientist, for example, common political rationales for the expansion of urban boundaries to 'capture' new voters or increase the population weight of the urban unit for allocations of national resources may be precisely the objects of study. However, for an economic geographer or investment planner there may be an expectation that the data indicate something about economies and employment structures. Ideally other data on, for example, infrastructure and services in individual settlements would be factored in to urban definitions or available for users to cross-reference with population numbers. There are strong limitations imposed, however, on African national statistical offices by their limited resources (Jerven 2013) and, beyond population numbers, publicly available socio-economic data on individual towns, apart sometimes from the capital city and one or two others, are not easily found. Some data for 'all urban' areas are sometimes published but these are of little guidance for intra-urban assessments. Nonetheless most African censuses do collect data on a range of household characteristics such as housing type and education which are often published for provincial and district level. If these were disaggregated by individual *urban settlement* also, our understandings of urbanization would be much improved. The same is true of labour force surveys which are beginning to be more regularly collected in a few countries, such as Ghana, but again the data are not disaggregated by individual towns. However, even if 'economic' users find that 'urban' and 'rural' definitions do not, for example, account for 'what people do'so that associated datasets may be problematic for assessing economic structural change, as in Kenya, then at least they are aware that the data should be used with caution. This might also

suggest the need to triangulate national urban datasets with other relevant data, such as labour force surveys, as a cross check. The easy availability of remotely sensed imagery can be helpful here although, as shown with reference to Africapolis's report on Kenyan urbanization, formulaic use can be problematic. Familiarity with the regional context of the countries in question can also make a significant difference to the validity of urban analyses.

REFERENCES

Bassett, E. (2016). Urban Governance in a Devolved Kenya. In C. Nunes Silva (Ed.), *Governing Urban Africa*. London: Palgrave Macmillan.

Becker, C. M., Hamer, A. M. and Morrison, A. R. (1994). *Beyond urban bias: African urbanisation in an era of structural adjustment*. London: James Currey.

Brenner, N. (Ed.) (2013). *Implosions/explosions. Towards a study of planetary urbanization*. Berlin: Jovis.

Brenner, N., and C. Schmid. (2014). The 'Urban Age' in Question. *International Journal of Urban and Regional Research, 38*(3):731–55.

Bryceson, D. F., and Jønsson, J. (2010). Gold Digging Careers in Rural Africa: Small-Scale Miners' Livelihood Choices. *World Development, 38*(3), 379-92.

Champion, A., and Hugo, G. (Eds.) (2004). *New Forms of Urbanization: Beyond the Urban-Rural Dichotomy*. Aldershot, Ashgate.

Civil Society Urban Development Programme [no date], *Kenya Urban Areas: A Brief.* Available at www.csudp.org/download/file/fid/85 [accessed on February 10 2016]

Cohen, B. (2004). Urban growth in developing countries: a review of current trends and a caution regarding existing forecasts. *World Development* 32 (1):23-51.

Dijkstra, L.and Poelman, H. (2014). A harmonised definition of cities and rural areas: the new degree of urbanization. Directorate-General for Regional and Urban Policy, European Commission. Working Papers 01/2014.

http://ec.europa.eu/regional_policy/sources/docgener/work/2014_01_new_urban.pdf

*East African* [Kenya] (2011.) Migration to urban areas holds key to Kenya's middle income status, June 6.

Foeken, D. and S. Owuor. (2001). Multi-spatial livelihoods in sub-Saharan Africa: rural farming by urban households - the case of Nakuru, Kenya. In M. de Bruijn, R.

van Dijk and D. Foeken (Eds.) *Mobile Africa; changing patterns of movement in Africa and beyond*. Leiden, Boston: Brill.

Harre, D., F. Moricon-Ebrard, and H. Gazel. (2010a). *Africapolis II. L'urbanisation en afrique centrale et orientale*: French Development Agency (AFD) / e-Geopolis.

Harre, D., F. Moricon-Ebrard, and H. Gazel. (2010b). *Africapolis II, Urbanization in Central and Eastern Africa, Country Profile Kenya*, French Development Agency (AFD) / e-Geopolis.

Hilson, G. (2009). Small-scale mining, poverty and economic development in sub-Saharan Africa: An overview. *Resources Policy 34*(1-2),1-5.

IIHS [Indian Institute for Human Settlements] (2011). *Urban India 2011: Evidence*, Indian Urban Conference: Autumn Worldwide. Available from https://www.citiesalliance.org/.../IUC%20Booklet%20on%20Indian%20cities.Pdf [accessed on December 20 2015]

Jerven, M. (2013). *Poor Numbers: how we are misled by African development statistics and what to do about it*. London: Cornell University Press.

Jones, G., and S. Corbridge. (2010). The continuing debate about urban bias : the thesis, its critics, its influence and its implications for poverty-reduction strategies. *Progress in Development Studies* 10 (1):1-18.

Lynch, K., R. Maconachie, T. Binns, P. Tengbe and K. S. Bangura, (2012). Meeting the urban challenge? Urban agriculture and food security in post-conflict Freetown, Sierra Leone, *Applied Geography, 36,* 31-39.

Maxwell, D. (1999). The Political Economy of Urban Food Security in Sub-Saharan Africa. *World Development 27*(11),1939–1953.

McGee, T. G. (2009). The Spatiality of Urbanization: The Policy Challenges of Mega-Urban and Desakota Regions of Southeast Asia. *UNU-IAS Working Paper No.*

*161*.

McGranahan, G. and Satterthwaite, D. (2014. Urbanisation concepts and trends. *Human Settlements Working paper 14*. London: IIED.

Mireri, C. (2006). Urbanisation Challenges in Kenya. In F. Waswa, S. C. J. Otor and D. N. Mugendi, Eds. *Environment and Sustainable Development: a guide for tertiary education in Kenya*. Nairobi: Kenyatta University.

Montgomery, M. (2008). The demography of the urban transition: what we know and don't know. In G. Martine, G. McGranahan, M. Montgomery and R. Fernández-Castilla. (Eds.) *The New Global Frontier: Urbanization, Poverty and Environment in the 21st Century* London: Earthscan.

Montgomery, M. R., Stren, R., Cohen, B., & Reed, H. (Eds.) (2004). *Cities transformed: Demographic change and its implications in the developing world*. London: Earthscan.

Mougeot, L. (eds) (2005). *AGROPOLIS: The Social, Political, and Environmental Dimensions of Urban Agriculture*, Ottawa, Earthscan/IDRC.

Munya, A., Hussain, N. H. M., and Njuguna, M. B. (2015). Can devolution and rural capacity trigger de-urbanization? Case studies in Kenya and Malaysia respectively. *GeoJournal, 80*(3), 427-443

O'Connor, A. (1983). *The African city*. London: Hutchinson University Library for Africa.

Odhiambo, E. (2014). Geographic Classification and Geo-coding in Kenya: Kenya National Bureau of Statistics. *International Workshop on Integration of Statistical and Geospatial Information* National Administration of Surveying, Mapping and Geo information of China (NASG), Beijing, China. Available at: ggim.un.org/.../International%20workshop/06_Kenya_ china%20presentation%20final.pdf [accessed February 16 2016]

Potts, D. (2010). *Circular Migration in Zimbabwe and Contemporary Sub-Saharan Africa*. Oxford: James Currey.

Potts, D. (2011). Making a livelihood in (and beyond) the African city: the experience of Zimbabwe. *Africa, 81*(4), 588-605.

Potts, D. (2012a). What do we know about urbanization in sub-Saharan Africa and does it matter? *International Development Planning Review*, *34*(1): v-xxi

Potts, D. (2012b). Challenging the Myths of Urban Dynamics in Sub-Saharan Africa: The Evidence from Nigeria. *World Development*, *40*(7): 1382–1393

Potts, D. (2016. Debates about African urbanisation, migration and economic growth: what can we learn from Zimbabwe and Zambia?, *Geographical Journal. 182*(3): 251-264.

Potts, D. (2011). Making a livelihood in (and beyond) the African city: the experience of Zimbabwe *Africa,* 81(4):588-605.

Qin, B. and Zhang, Y. (2014). Note on urbanization in China: Urban definitions and census data. *China Economic Review 30*,495–502.

Republic of Kenya, (2009) Census Volume 1, Table 3, online [accessed July 14 2012] https://opendata.go.ke/Population/2009-Census-Vol-1-Table-3-Rural-and-Urban-Populati/e7c7-w67t

Satterthwaite, D. (2006). Outside the Large Cities: The demographic importance of small urban centres and large villages in Africa, Asia and Latin America. In *Human Settlements Discussion Paper - Urban Change 3*. London: IIED.

Satterthwaite, D. (2007). The Transition to a Predominantly Urban World and its Underpinnings. In *Human Settlement Discussion Paper Series: Urban Change 4*. London: IIED.

Satterthwaite, D. (2010). Urban Myths and the Mis-use of Data that Underpin them. *Working Paper No. 2010/28*: UNU/WIDER

http://www.wider.unu.edu/publications/working-papers/2010/en_GB/wp2010-28/

Selolwane, O. (2006). From infrastructural development to privatization: employment creation and poverty reduction in Gaborone, Botswana. In D. Bryceson and D. Potts (Eds.) *African urban economies: viability, vitality or vitiation of major cities in East and southern Africa?* Houndmills: Palgrave Macmillan.

Shen, J. (2005). Counting urban population in Chinese censuses 1953–2000: changing definitions, problems and solutions. *Population, Space and Place, 11* (5):381-400.

Simatele, D., T. Binns and M. Simatele (2012). Urban livelihoods under a changing climate: perspectives on urban agriculture and planning in Lusaka, Zambia, *Journal of Human Development and Capabilities*, *13*(2), 269-293

Simon, D., Mcgregor, D. and Nsiah-Gyabaah, K. (2004). The changing urban-rural interface of African cities: definitional issues and an application to Kumasi, Ghana. *Environment and Urbanization*, *16*(2), 235-248.

Tacoli, C. (2002). *Changing Rural-urban Interactions in Sub-Saharan Africa and their Impact on Livelihoods: A Summary Rural Urban Working Paper 7*. London: IIED, Urban Change Working Paper 4.

Tacoli, C. (Ed.) (2006). *The Earthscan Reader in Rural-Urban Linkages*. London: Earthscan.

Tacoli, C., G. McGranahan and D. Satterthwaite (2008). Urbanization, Poverty and Inequity: Is Rural–Urban Migration a Poverty Problem, or Part of the Solution? In G. Martine, G. McGranahan, M. Montgomery and R. Fernández-Castilla (Eds.) *The new global frontier: urbanization, poverty and environment in the 21st Century*, London: Earthscan.

Tambwe, N., Rudolph, M., and Greenstein, R. (2011). 'Instead of begging I farm to feed my children': urban agriculture - an alternative to copper and cobalt in Lubumbashi, *Africa*

*81*(3),391-412

United Nations (2015). *World Urbanization Prospects: the 2014 revision*. New York: UN.

University of Copenhagen (2016). Rurban Africa: African rural-city connections, http://rurbanafrica.ku.dk/ [accessed February 1, 2016]

Wirth, L. 1969 [1937]. Urbanism as a way of life, in Sennett, R. (ed) *Classic essays on the culture of cities*, NJ, Prentice Hall.

World Bank (2011). *Kenya economic update 4: turning the tide in turbulent times: making the most of Kenya's demographic change and rapid urbanization.* Poverty Reduction and Economic Management Unit Africa Region.

World Bank (2012). *Devolution without disruption: pathways to a successful new Kenya.* Nairobi, World Bank.

Zhu, Y. (2000). In situ urbanization in rural China: case studies from Fujian Province. *Development and Change* 31:413-34.

[i] The report includes a table of the largest 'towns' which is based on the 'urban' and 'peri-urban' figures for 2009, with projections for each to 2020. This applies an annual growth rate of 4.7% to every town, regardless of whether the populations are mainly 'urban' or predominantly 'peri-urban', which is evidently problematic.

[ii] Translated from French.